

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

Claim 13 has been amended to recite that each of the attachments is pivotally supported at a different position by the connecting link with reference to a pivot position on the boom and that the attachments include a bucket that is attached to the boom and the connecting link such that the bucket has different postures at the ground position including a horizontally supported posture and a tilted posture in which the bucket is tilted by the tilt cylinder.

In addition, claim 13 has been amended to recite that the bell crank is constructed and connected to the tilt cylinder and the boom, the tilt cylinder is constructed and connected to the bell crank and the structural body, and the boom is constructed and connected to the bell crank and the structural body to provide the attachment with the ground position, a top position and at least one intermediate position between the ground position and the top position in which the attachment, including the bucket with the different postures at the ground position, has the same posture in all of the ground position, the at least one intermediate position and the top position.

Still further, new claims 30 and 31 have been added to recite additional features of the invention.

No new matter has been added, and it is respectfully requested that the amendments to the claims be approved and entered, and that the rejection of claims 13, 21, 25 and 29 under 35 USC 112 be withdrawn.

THE PRIOR ART REJECTION

Claims 13, 21, 25 and 29 were rejected under 35 USC 103 as being obvious in view of the combination of JP 63-22499 and USP 5,201,235 ("Sutton"). This rejection, however, is respectfully traversed with respect to the claims as amended hereinabove.

According to the present invention as recited in amended independent claim 13, a working machine is provided which comprises a boom having a first end attached to a structural body, an attachment attached to a second end of the boom, a bell crank attached to a middle position of the boom in a longitudinal direction thereof, a tilt cylinder having a first end pivotally supported on the structural body and a second end pivotally supported on an upper end of the bell crank when the fork is horizontally at a ground position, a boom cylinder having a first end pivotally supported on the structural body and a second end pivotally supported on the boom, and a connecting link for connecting a lower end of the bell crank and the attachment when

the attachment is horizontally at a ground position. In addition, as recited in amended independent claim 13, the attachments include a bucket, the bucket being attached to the boom and the connecting link such that it has different postures at the ground position including a horizontally supported posture and a tilted posture in which it is tilted by the tilt cylinder. Still further, as recited in amended independent claim 13, a pivot position of the tilt cylinder to the structural body is below a pivot position of the boom to the structural body, and a pivot position of the boom cylinder to the structural body is above a pivot position of the boom to the bell crank when the fork is horizontally at a ground position.

Yet still further, according to the present invention as recited in amended independent claim 13, the bell crank is constructed and connected to the tilt cylinder and the boom, the tilt cylinder is constructed and connected to the bell crank and the structural body, and the boom is constructed and connected to the bell crank and the structural body to provide the attachment with the ground position, a top position and at least one intermediate position between the ground position and the top position in which the attachment, including the bucket with the different postures at the ground position, has the same posture in all of the ground position, the at least one intermediate position and the top position.

With the structure of the claimed present invention, the inventors have recognized that even when different attachments are used, the angle characteristics of all of the different attachments can be improved in the entire range of use thereof from the ground position to the top position in both an arrangement in which the attachment is horizontally set and another arrangement in which the attachment is tilted. That is, the posture of the attachment in the claimed present invention does not affect the ability of the working machine to provide improved angle characteristics, and thus large tilting force can be generated irrespective of the types of the attachments, thereby allowing the use of an attachment (e.g. fork) different from bucket. Indeed, improved angle characteristics can even be obtained when the attachment is a bucket that is attached to the boom and the connecting link "such that it has different postures at the ground position including a horizontally supported posture and a tilted posture in which it is tilted by the tilt cylinder", as according to the present claimed invention.

It is respectfully submitted that the cited references do not disclose or suggest the above described structural features and advantageous effects of the present invention as recited in amended independent claim 13.

In particular, it is respectfully pointed out that JP 63-22499 and Sutton do not disclose the specified structure and/or

interconnections of a bell crank, a tilt cylinder, a boom and a structural body to provide an attachment with specific positions in which the attachment has the same posture, as according to the claimed present invention. Indeed, the cited references completely fail to disclose these particular features relating to the structure and connection of the components of the working machine of the claimed present invention, and it is respectfully submitted that the structures disclosed in the cited references cannot achieve the advantageous angle characteristics achieved by the claimed present invention.

On page 4 of the Office Action, the Examiner asserts that "the Japanese reference maintains his element at about the same position and Sutton maintains his element at the same position during tilting." It is respectfully pointed out, however, that Sutton discloses that a bucket is only horizontally set at a ground position, and not tilted at the ground position - i.e., it does not have a posture in which the bucket is tilted by a tilt cylinder at a ground position. Therefore, Sutton cannot disclose providing the bucket with the same posture, including a posture in which the bucket is tilted by a tilt cylinder at the ground position, in all of the ground position, top position and in intermediate position, as according to the claimed present invention, and it is respectfully submitted that the same is true in the case of JP 63-22499.

Moreover, it would not have been obvious to a person having ordinary skill in the art to modify the work machine of JP 63-22499 in view of Sutton in view of differences in the manner in which JP 63-22499 and Sutton address problems of work machines. JP 63-22499 is an example of a traditional design of a work machine which addresses a problem with the tilting force applied to the work machine when the bucket is attached. Specifically, in JP 63-22499, to avoid a decrease in the tilting force when the bucket 6 is attached, the angle between the line segment connecting the pivot position of the bell crank 7 on the boom 4 and a pivot position of the bell crank 4 on the tilt cylinder 9 on a side of the bucket 6 and the line segment connecting the pivot position of the bell crank 4 on the tilt cylinder 9 and a pivot position of the tilt cylinder 9 on the working structure 2 on a side of the working structure is around 90° , see Fig. 2. As a result, the angle between a line segment connecting a pivot position of the bell crank 7 on the boom 4 and a pivot position of the bell crank 7 on the connecting link 13, and the line segment connecting the pivot position of the bell crank 7 on the boom 4 and a pivot position of the bell crank 7 on the tilt cylinder 9 on a side of the bucket 6 is greater than 180° . With this particular angular formation, a decrease in the tilting force when the bucket 6 is attached is avoided.

On the other hand, Sutton emphasizes a particular self-leveling linkage of parts configured such that once an attitude or orientation of the bucket with respect to the ground is achieved, the linkage will maintain that attitude as the bucket is raised or lowered without additional operator input. To this end, when a tilt cylinder is held stiff as the bucket is raised or lowered, the parallelogram action of a frame, lift arm, equalizer link and equalizer bar will be imparted to the parallelogram of the tilt cylinder, bucket, lift arm and equalizer link and will thereby automatically adjust the tilt of the bucket as it is raised or lowered to thereby maintain its original attitude with the ground.

Since JP 63-22499 has a different linkage than Sutton and which is designed with a specific objective, it would not have been obvious to a person having ordinary skill in the art to modify the work machine of JP 63-22499 in view of Sutton to include only the bell crank with a forward bend from the arrangement in Sutton having the unique linkage since the need or desirability for such a bell crank independent of the unique linkage is not evident from Sutton or JP 63-22499.

In view of the foregoing, it is respectfully submitted that the present invention as recited in amended independent claim 13 and claims 21, 25 and 29-31 depending therefrom clearly

patentably distinguishes over the cited references, taken singly or in combination, under 35 USC 102 as well as under 35 USC 103.

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Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

/Douglas Holtz/

Douglas Holtz
Reg. No. 33,902

Frishauf, Holtz, Goodman & Chick, P.C.
220 Fifth Avenue - 16th Floor
New York, New York 10001-7708
Tel. No. (212) 319-4900
Fax No. (212) 319-5101

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encs.